

INSTALLATION AND MAINTENANCE MANUAL



GROUND SOURCE HEAT PUMP WITH DC INVERTER (SIMPLE TYPE)

MODEL:

BWB-SS-7 DC BWB-SS-9 DC

BWB-SS-12 DC BWB-SS-15 DC



- Please Read This Manual Before Using The Heat Pump -

Contents

General information for the installer

Transport and storage	2
Installation	2
Overview of external structure	2
Inspection of the installation	2
Copper tube size	2

Pump Data

Pump capacity diagrams	3
How to adjust the rate of flow	4

Electrical connections

Wiring diagram (220v / 1 / 50 Hz)	5
Wiring diagram (220v / 3 / 50 Hz)	6
Wiring diagram (380v / 3 / 50 Hz)	7

Control panel

Layout	8
Explanation	8
Functions	9
Symbols	9

Control

Menus	10
Function detail	11
Alarm Messages	13
Circuit Board Picture For DC BWB-SS- 7 and DC BWB-SS-9.....	18
Circuit Board Picture For DC BWB-SS- 12 and DC BWB-SS-15	18
Water Sensor Resistance	19

Component placement

Component positions 1	20
Component positions 2	21

Accessories and List of components

List of components	22
Enclosed kit	22

Dimensions

Dimensions	23
------------------	----

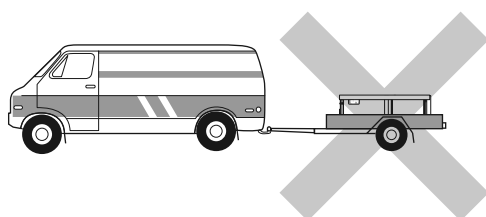
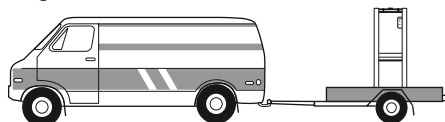
Technical specifications

Technical specifications	24
--------------------------------	----

General information for the installer

Transport and storage

The BWB-SS DC must be transported and stored upright and dry. The BWB-SS DC may however be carefully laid on its back when being moved into a building.



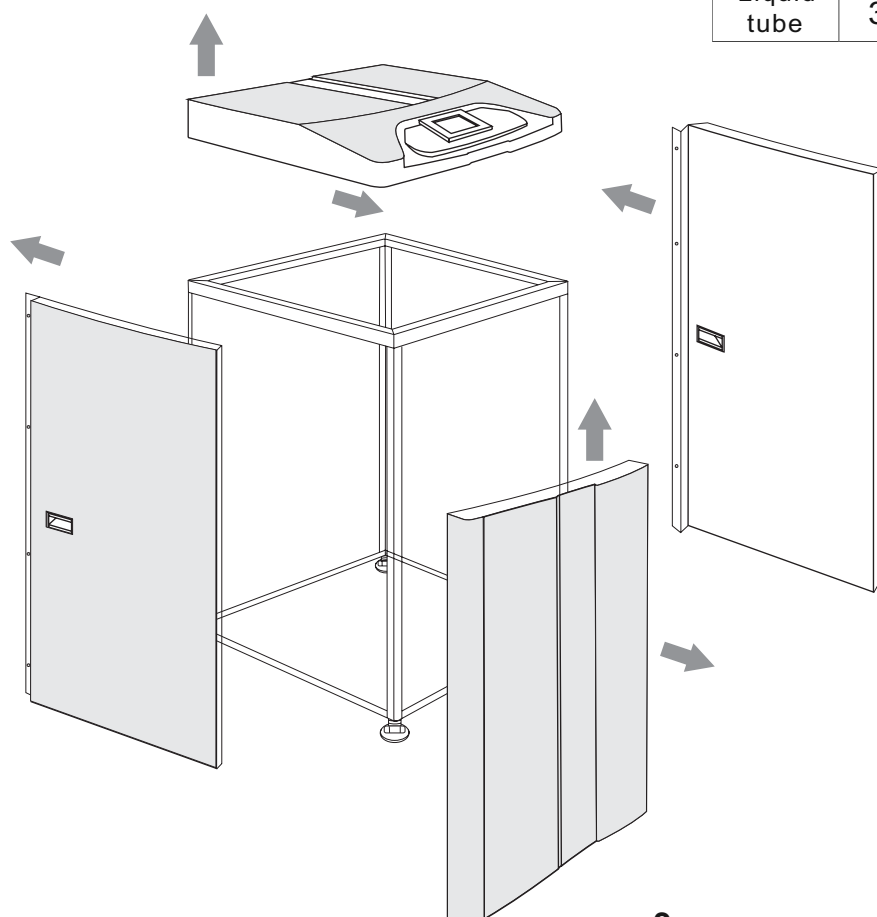
Inspection of the installation

Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person and should be documented. The above applies to closed heating systems. If the heat pump is replaced, the installation must be inspected again.

Installation

BWB-SS DC is placed on a firm base, preferably a concrete floor or foundation. Install AWA-SS series with its back to an outside wall, ideally in a room where noise does not matter. If this is not possible, avoid placing it against a wall behind a bedroom or other room where noise may be a problem. Any wall that backs on to a bedroom should be fitted with sound insulation. Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.

Overview of external structure



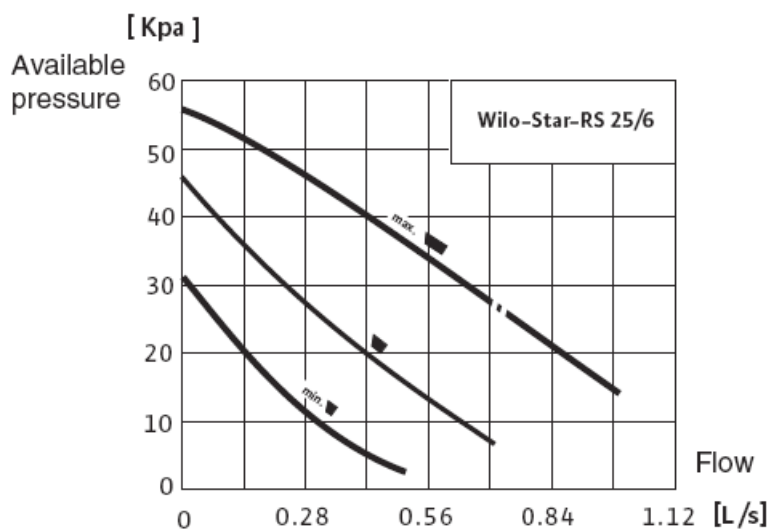
Copper tube size

Mode Size	BWB- SS-7	BWB- SS-9	BWB- SS-12	BWB- SS-15
Gas tube	5/8"	5/8"	3/4"	3/4"
Liquid tube	3/8"	3/8"	1/2"	1/2"

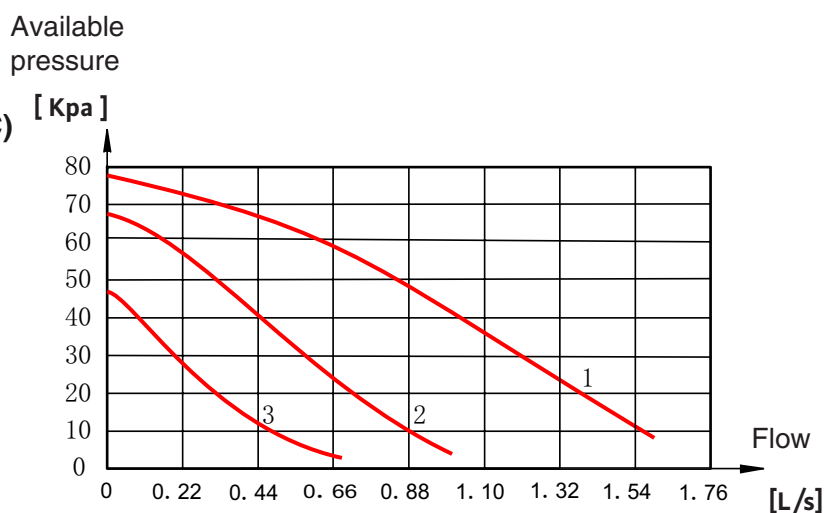
Pump Data

Pump capacity diagrams

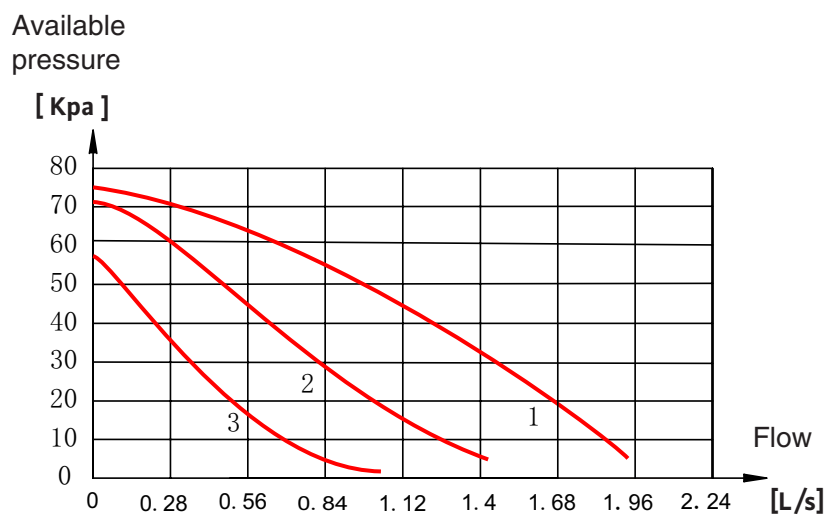
Wilo-Star-RS 25/6
(BWB-SS-7 DC)



Wilo-Star-RS 25/8
(BWB-SS-9 DC / BWB-SS-12 DC)



WILO RL-25/7.5
(BWB-SS-15 DC)



Pump Data

How to adjust the rate of flow

WILO RS-25/6
WILO RS-25/8

The pump is adjustable to adjust the flow: 1, 2, or 3.



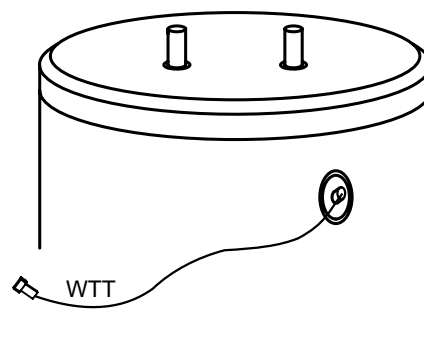
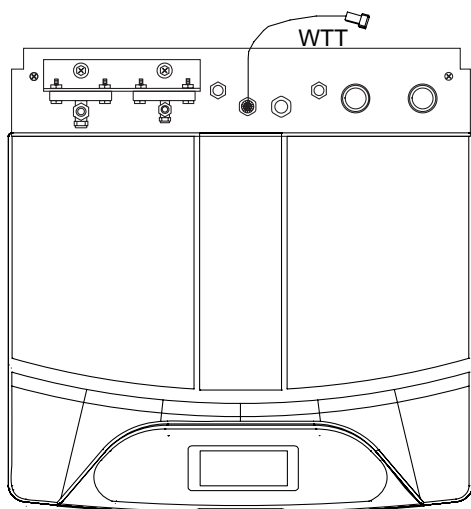
WILO RL-25/7.5



The pump is adjustable to adjust the flow: 1, 2, or 3.



Connecting The Water Tank Temperature Sensor

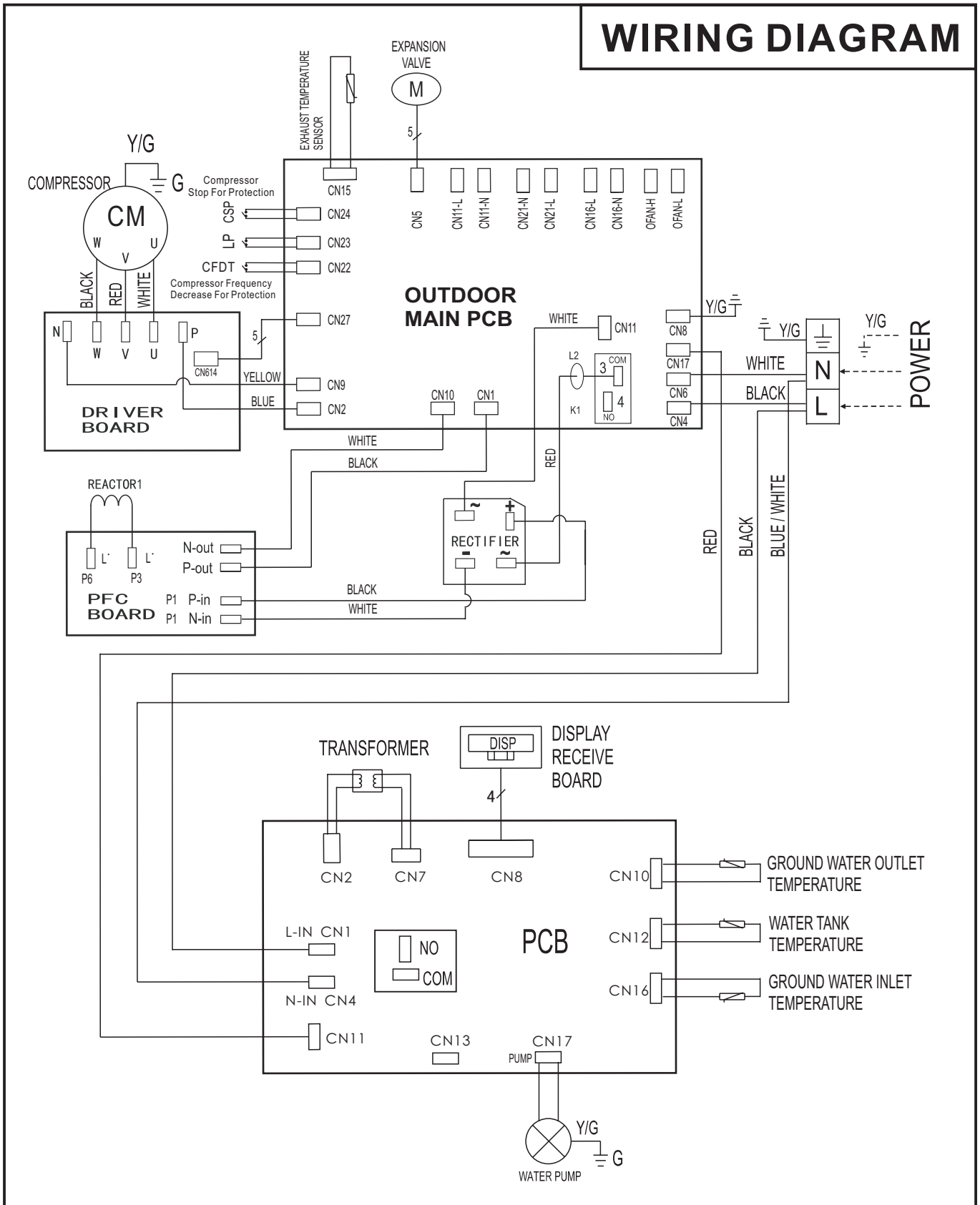


WTT=Water tank temperature sensor

Electrical connection

Wiring Diagram (220V / 1 / 50 HZ)

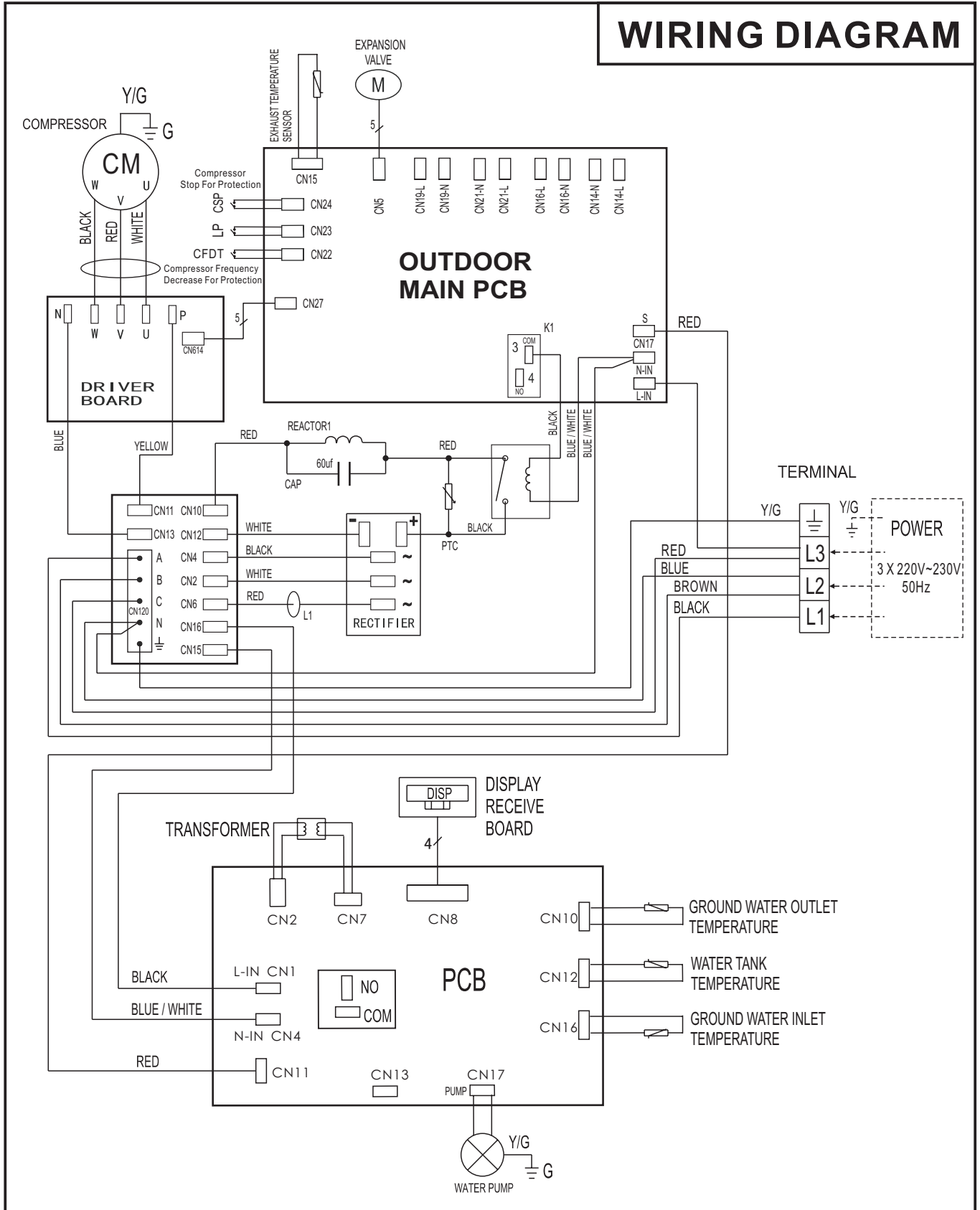
BWB-SS-7/9 DC (220V / 1 / 50 HZ)



Electrical connection

Wiring Diagram (220V / 3 / 50 HZ)

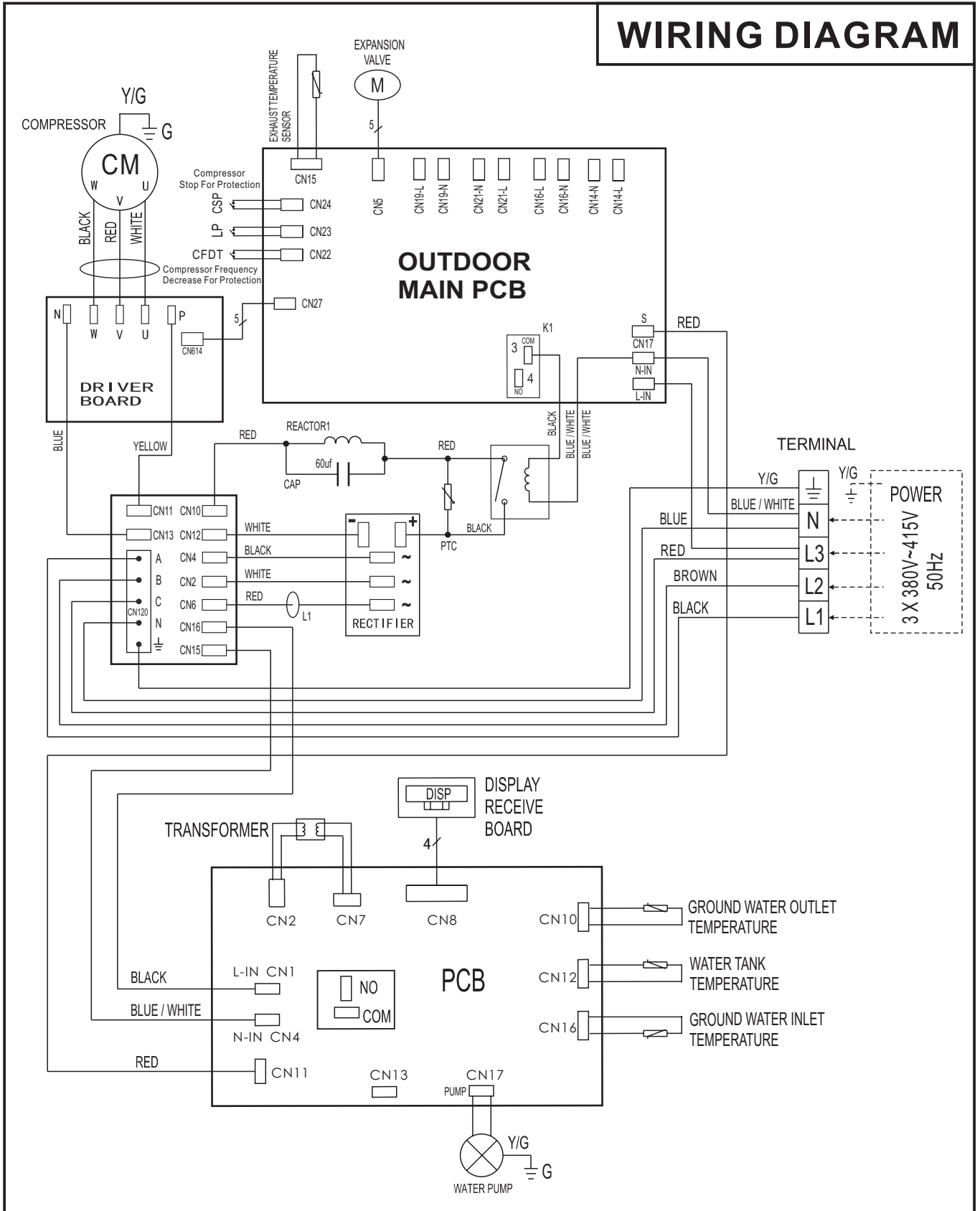
BWB-SS-12/15 DC (220V / 3 / 50 HZ)



Electrical connection

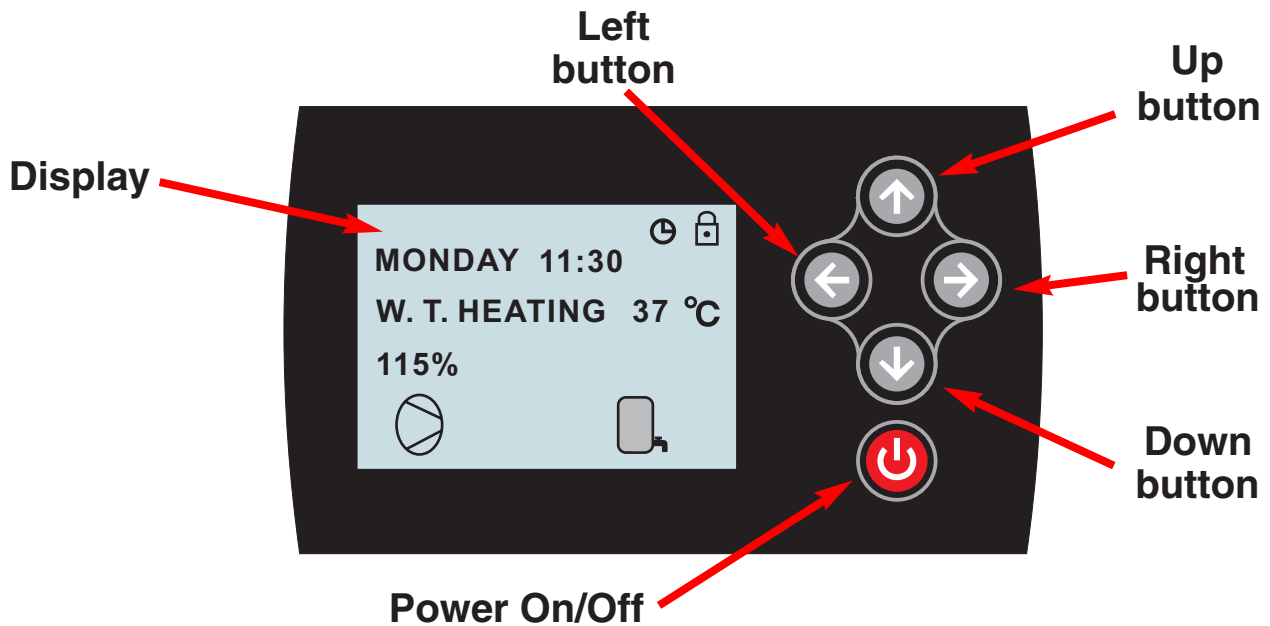
Wiring Diagram (380V / 3 / 50 HZ)

BWB-SS-12/15 DC (380V / 3 / 50 HZ)



Control panel

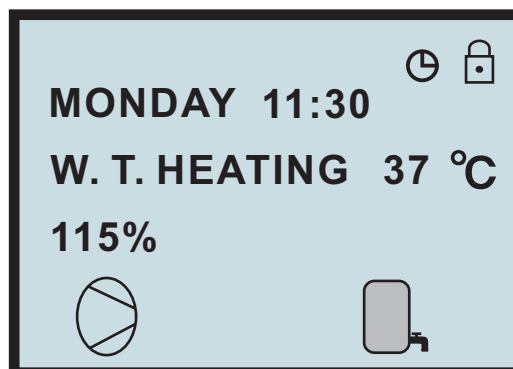
Layout



- One button pointing upwards marked with a up arrow
- One button pointing downwards marked with a down arrow
- One button pointing to the right marked with a right arrow
- One button pointing to the left marked with a left arrow
- One button pointing to the ON/OFF

Explanation

The control panel of BWB-SS DC series features a graphic display, five control buttons. Beside the control panel you will find the User's Manual, a short description of how to increase and reduce room temperature, and a label with name and phone number of dealer.



Graphic display

Control panel

Functions

The control computer is operated with the help of a user friendly menu system that is displayed on the control panel. There is a main menu and several sub-menus accessible from the main menu. The menus are described in detail further down.

To be able to select the desired menu and increase or reduce preset values, you will use the five buttons.

The right-hand button on the control panel is used to open the desired menu.

The left-hand button is used to return to the previous menu.

The up and down buttons are used to navigate between the parameters of a menu.

A cursor (arrow) on the left-hand side of the display indicates which menu can be opened.

The up and down buttons are also used if you wish to increase or reduce a preset value.

When display at the interface, press button Right and Left at the same time for 5 seconds to lock the display. All buttons are not available after lock is active, until press button Right and Left at the same time for 5 seconds to open the lock

Symbols

For you to know at a glance the actual operating mode of the heat pump, one of the following symbols will be shown in the lower part of the display depending on which part of the unit is working:



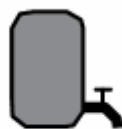
The heat pump is running.



Indicates the status of warm water production. If the symbol is empty, warm water temperature is under the setting temperature.

(115)%

The running speed percentage of compressor.



If the symbol is full, warm water temperature reached to the setting temperature

NOTICE

During heat pump running, if the water tank symbol twinkles once in every second, it means water tank temperature is too low and it is in antifreezing protection. At the time warm water heating will forcibly start until water temperature get to 20 °C, then go back to previous running mode.

Control

Menus

<div> <div>←</div> <div>MENU</div> </div>	
WARM WT	36(53) °C
BR. IN	12 (-9) °C
BR. OUT	13 °C
CMP DIF	11 °C
CONSTANT	0 °C
HEATING GEAR	1
▼ TIME SETTING	

▲ WORK WAY	
STERILIZE	OFF
ADD. START	55 °C
ADD DELAY	60 M
RESET	
LANGUAGE	

Parameter display or setting

Setting	Setting range	Default	Explanation
Warm WT	10-60°C	45°C	Water tank setting temperature
BRINE IN	-15-15°C	0°C	Brine water inlet temperature
BRINE OUT			Brine water outlet temperature
WORK WAY	1. ON/OFF 2. Const.	ON/OFF	To let the heat pump runs ON/OFF or Constant way ON/OFF: heat pump will stop as soon as reach setting water temperature CONST.: compressor will slow down when getting close to setting water temperature
CMPDIF	3-15°C	5°C	Compressor restart according to water temperature degeneration Factory setting is 5 degree, when water reach setting temperature 45 degree, the compressor will stop, then when the water temperature decrease 5 degree, the compressor will restart.
STERILIZE	ON/OFF	OFF	The function to kill the bacteria ON: function is available OFF: function is not available
ADD START	10-60°C	55°C	Additional electrical heater start temperature Only if the water temperature reaches 55 degree, the additional electrical heater is allowed to start.
ADD DELAY	2-90	60min	Additional electrical heater delay time After running of compressor 60 minutes, if the water temperature still can not increase, the additional electrical heater will start as supplementary
HEATING GEAR	1-3	1	Different gear has different compressor frequency range
CONSTANT	0-8°C	3°C	Constant temperature setting If the heat pump runs Const. way, when the water temperature is 3 degree far from setting temperature, the compressor will slow down. For example, the setting water temperature is 55 degree, when water reaches 52 degree, the compressor start to slow down its speed.

Control

Function detail

Warm WT(10-60℃): water tank setting temperature

When water get to setting temperature heat pump will stop automatically if the work way is ON/OFF

When water is getting close to setting temperature heat pump will slow down if the work way is Const.

BRINE IN(10--15℃) Brine water inlet temperature

This parameter setting is adjustable from 10 degree to -15 degree, factory setting is 0 degree; when actual water temperature less than setting temperature , heat pump will stop running; water pump runs 3 minutes after it has been stop running 10 minutes each time. Heat pump will restart when actual water temperature higher than setting temperature 2 degree.

BRINE OUT: Brine water outlet temperature

Only display real water temperature for reference.

CMPDIF: compressor restart according to temperature degeneration.

The parameter is adjustable from 3 to 15 degree; Factory setting is 5 degree, when water reach setting temperature 45 degree, the compressor will stop, then when the water temperature decrease 5 degree, the compressor will restart.

HEATING GEAR: compressor frequency range

It is adjustable from gear 1 to 3, factory setting is gear 1; the higher gear setting, the high compressor frequency will be ;

CONSTANT(0-8℃): Constant temperature setting

Factory setting is 3 degree.

If the heat pump runs Const. way, when the water temperature is 3 degree far from setting temperature, the compressor will slow down. For example, the setting water temperature is 55 degree, when water reaches 52 degree, the compressor start to slow down its speed.

TIME SETTING

← TIME SETTING	
DATE	2011-12-19
DAY	MONDAY
TIME	15:32
TIMER 1 ON	✓
	8:00
TIMER 1 OFF	✓
	11:00

▲ TIMER 2 ON	✓
	10:00
TIMER 2 OFF	✓
	18:30

DATE

To display year, month, date.

DAY

TO display day of week.

TIME

To display time, or adjust time.

Double timers for heat pump

When you choose the symbol '✓', the Auto start function of water tank heating is active. Select '✕' to cancel this function. If this function is active the heat pump will start heating water tank at the time of your choosing.

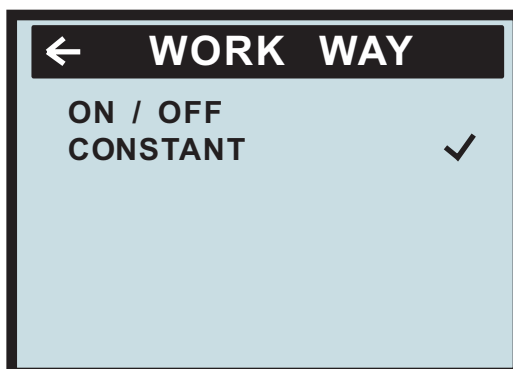
When you choose the symbol '✓', the Auto stop function of water tank heating is active. Select '✕' to cancel this function. If this function is active the heat pump will stop heating water tank at the time.

Please do not set TIME ON and TIME OFF to be same data.

Control

Function detail

WORK WAY: ON/OFF mode or Const. mode (inverter)



ON/OFF mode : compressor stop running as soon as reach setting water temperature

Const. mode: constant water temperature mode, factory setting is 3 degree; if the heat pump runs Const. way, when the water temperature is 3 degree far from setting temperature, the compressor will slow down. For example, the setting water temperature is 55 degree, when water reaches 52 degree, the compressor start to slow down its speed.

STERILIZE: function to kill the bacteria in period

ON: function is available; each 15 days the heat pump will execute sterilize once and the water temperature will up to 60 degree; during the 15 days, if any day of the period the water has reach the 60 degree, then the calculation for the period will be restart; during the time of bacteria killing, if 3 hours later the water still can not up to 60 degree, sterilize action will quit automatically.

OFF: function is closed.

ADD START(10-60°C): additional electrical heater start temperature

Factory setting is 55degree, only if the water temperature reaches 55 degree; the additional electrical heater is allowed to start.

ADD DELAY (2-90 minute): Additional electrical heater delay time

Factory setting is 60 minutes.

After running of compressor 60 minutes, if the water temperature still can not increase, the additional electrical heater will start as supplementary

RESET:

Press button right for 5 seconds, all the settings will go back to factory setting (default)

Language:

English, Norwegian and Swedish.



Control

Alarm Messages

In the event of an alarm message, try to re-start the unit with the safety switch.

If this does not work, try to solve the problem with the help of the table below. Call your installation contractor if you need help.

Table : Alarm Messages

Alarm	Explanation
DISPLAY EEPROM	EEPROM reading failure from display
DISPLAY-TRANSITION COMMUNICATE	The communications failure between display board and transition circuit board
TRANSITION EEPROM	EEPROM reading error from transition circuit board
TRANSITION-MAIN COMMUNICATE	The communications error between transition circuit board and main circuit board
MAIN-MODULE COMMUNICATE	The communications error between main circuit board and module
MODULE VOLTAGE OVER	Outdoor module voltage over-low error
IPM MODULE	IPM module error
CMP TOP OVER	Compressor top temperature over
CMP TEMP.	Compressor exhausts temperature sensor error
WARM WATER TEMP.	Water tank temperature sensor error
HIGH PRESS	Pressure over high
LOW PRESS	Pressure over low
WARM WATER TEMP. TOO LOW	The water tank temperature is too low
BRING IN TEMP.	The brine water inlet temperature sensor error
BRING OUT TEMP.	The brine water outlet temperature sensor error

Control

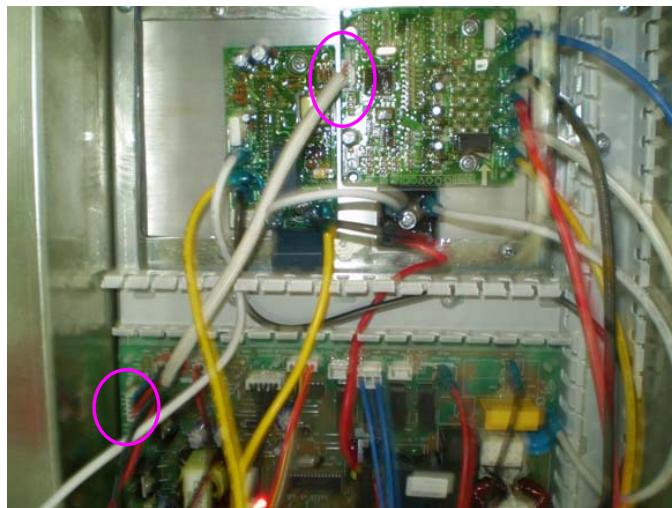
Alarm Messages

The cause of alarm 'IPM MODULE' could be:

- 1、The communications between Module and outdoor main circuit board is jamming;
- 2、Module is jamming and can not detect current or compressor;
- 3、Module can not start compressor;
- 4、Module's rated 15VDC voltage is not steady
- 5、Module's current overload;

How to do:

1. Please check if all terminals connections among circuit boards were good, whether some of the wire damaged;
2. Please check if the compressor wire connection loose (on the top of compressor);
3. Please measure each two of the connections (on the top of compressor)'s resistance, if the resistance are always the same, means the compressor is fine. there 3 connections on the top of compressor , you need to measure each two 's resistance, for example , let 's say the connections are A, B, C, then you need to measure the resistance of AB, AC, BC;
4. please check wire connection between the outdoor circuit board and module; see the follow picture

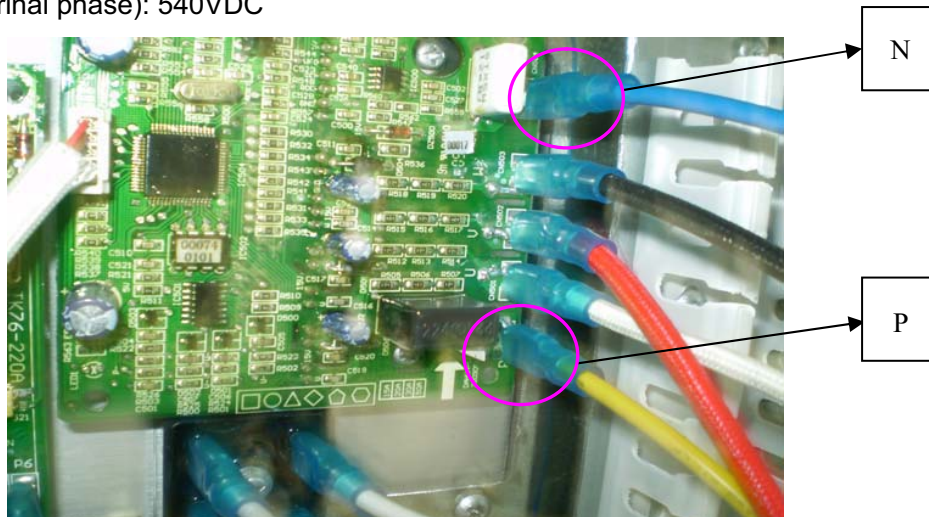


5. Check the DC voltage between terminal P and N if normal, the DC voltage should be:

BWB-SS-7 / 9 DC: 380VDC

BWB-SS-12 / 15 DC (single phase): 280VDC

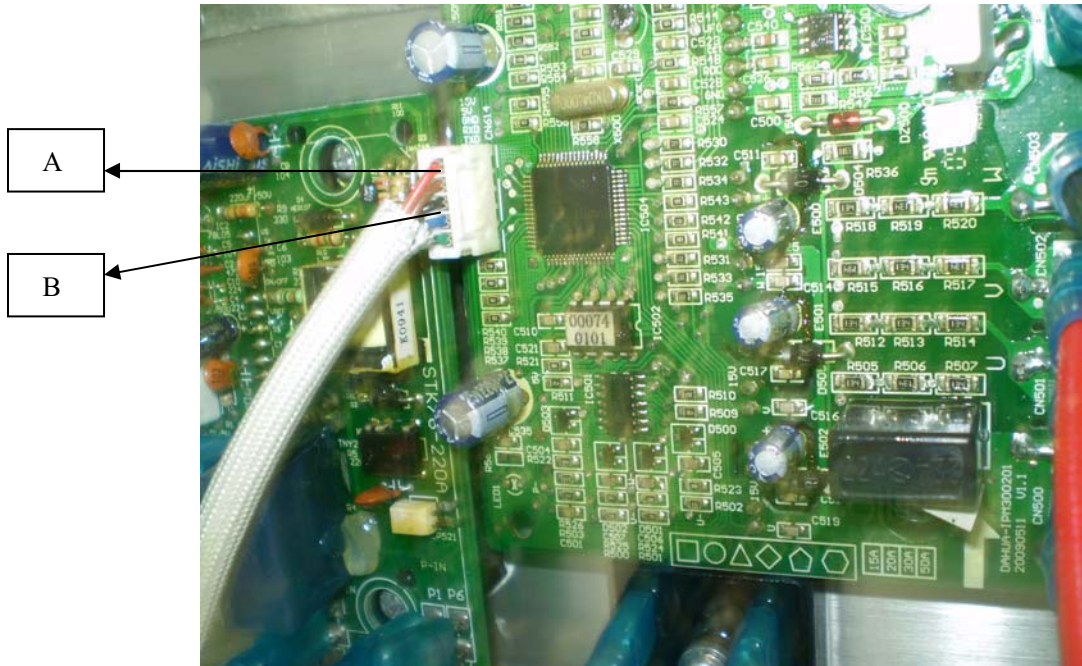
BWB -SS-12 / 15 DC (trinal phase): 540VDC



Control

Alarm Messages

6. check the if DC voltage between A(first wire) and B(third wire) is normal, it should be 13.5V ~16.5V



The cause of alarm 'TRANSITION-MAIN COMMUNICATE' could be:

1. The connection between transition circuit board and main circuit board is wrong;
2. The connection between transition circuit board and main circuit board is not good, such as had creepage;
3. The transition circuit board or main circuit board was damaged.

How to do:

1. Check the connection wire between transition circuit board and main circuit board, their live wires, zero curves was connected correctly;
2. Check the connection wire between transition circuit board and main circuit board, the wire must be less than 20 meters, the terminals must be water- proof;
3. If the connection is fine, then the cause could be the transition circuit board or main circuit board, please check their lights.

The cause of alarm 'MODULE VOLTAGE OVER' could be:

1. Water flow was not enough;
2. One of the sensors got problem;
3. Ambient temperature was too high

How to do:

1. Check if the water flow was not enough;
2. Check all the sensors if they are normal.

Control

Alarm Messages

The cause of alarm 'CMP TOP OVER' could be:

1. Water flow was not enough;
2. Refrigerant was not enough
3. Ambient temperature was too high;

How to do:

1. Check if the water flow was not enough, so that the heat exchange efficiency was not good;
2. Check the refrigerant quantity, and make sure the system has not any leak. ;

The cause of 'LOW PRESS' could be :

1. The refrigerant was not enough
2. The connection of low pressure switch was loose, or the switch was broken;
3. The outdoor fan can not run

How to do:

1. Check if there any place leak refrigerant, especially on the connections valves;
2. Check if the wire connection of low pressure switch was ok, or replace a new low pressure switch;
3. Check if the outdoor unit's fan was running, if not, please check if the fan was normal

The cause of 'HIGH PRESS' could be :

1. The water flow was not enough;
2. The high pressure switch's connection was not good; or the switch was broken;
3. The ambient temperature was too high.

How to do:

1. Always ensure enough water flow; otherwise the flow switch can not open;
2. Check if the wire connection of high pressure switch was ok, or replace a new one;

The cause of alarm 'WARM WATER TEMP.' could be:

1. The connection of water tank temperature sensor was loose;
2. The water tank temperature sensor was broken;

How to do:

1. Find the connection and make sure it is fine;
2. As per resistance table of the sensor, please measure the sensor's resistance, to judge the sensor was good or bad; replace a new one if the sensor get problem.

Control

Alarm Messages

The cause of alarm 'CMP TEMP.' could be:

1. The connection of compressor exhaust air temperature sensor was loose;
2. The compressor exhaust air temperature sensor was broken;

How to do:

1. Find the connection and make sure it is fine;
2. As per resistance table of the sensor, please measure the sensor's resistance, to judge the sensor was good or bad; replace a new one if the sensor get problem.

The cause of alarm 'BRING IN TEMP.' could be:

1. The connection of brine water inlet temperature sensor was loose;
2. The brine water inlet temperature sensor was broken;

How to do:

1. Find the connection and make sure it is fine;
2. As per resistance table of the sensor, please measure the sensor's resistance, to judge the sensor was good or bad; replace a new one if the sensor get problem.

The cause of alarm 'BRING OUT TEMP.' could be:

1. The connection of brine water outlet temperature sensor was loose;
2. The brine water outlet temperature sensor was broken;

How to do:

1. Find the connection and make sure it is fine;
2. As per resistance table of the sensor, please measure the sensor's resistance, to judge the sensor was good or bad; replace a new one if the sensor get problem.

Control

Circuit Board Picture For DC BWB-SS- 7 and DC BWB-SS-9



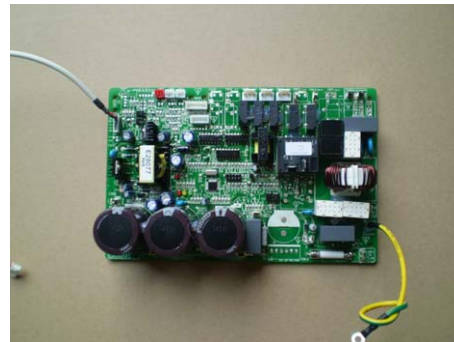
Display



Transition circuit board



Module



Main circuit board

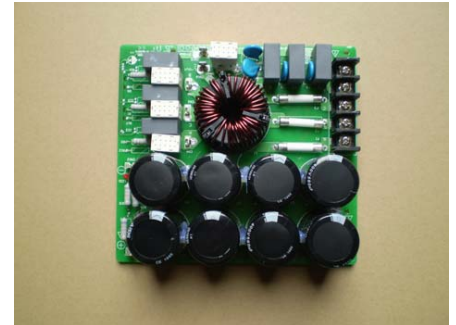
Circuit Board Picture For DC BWB-SS- 12 and DC BWB-SS-15



Display



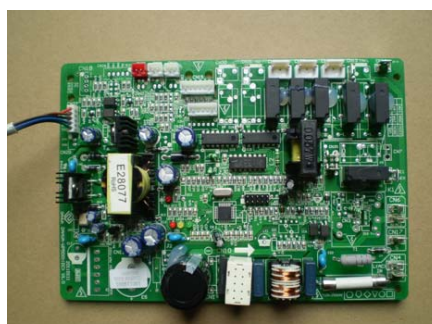
Transition circuit board



Power board



Module



Main circuit board

Control

Water Sensor Resistance

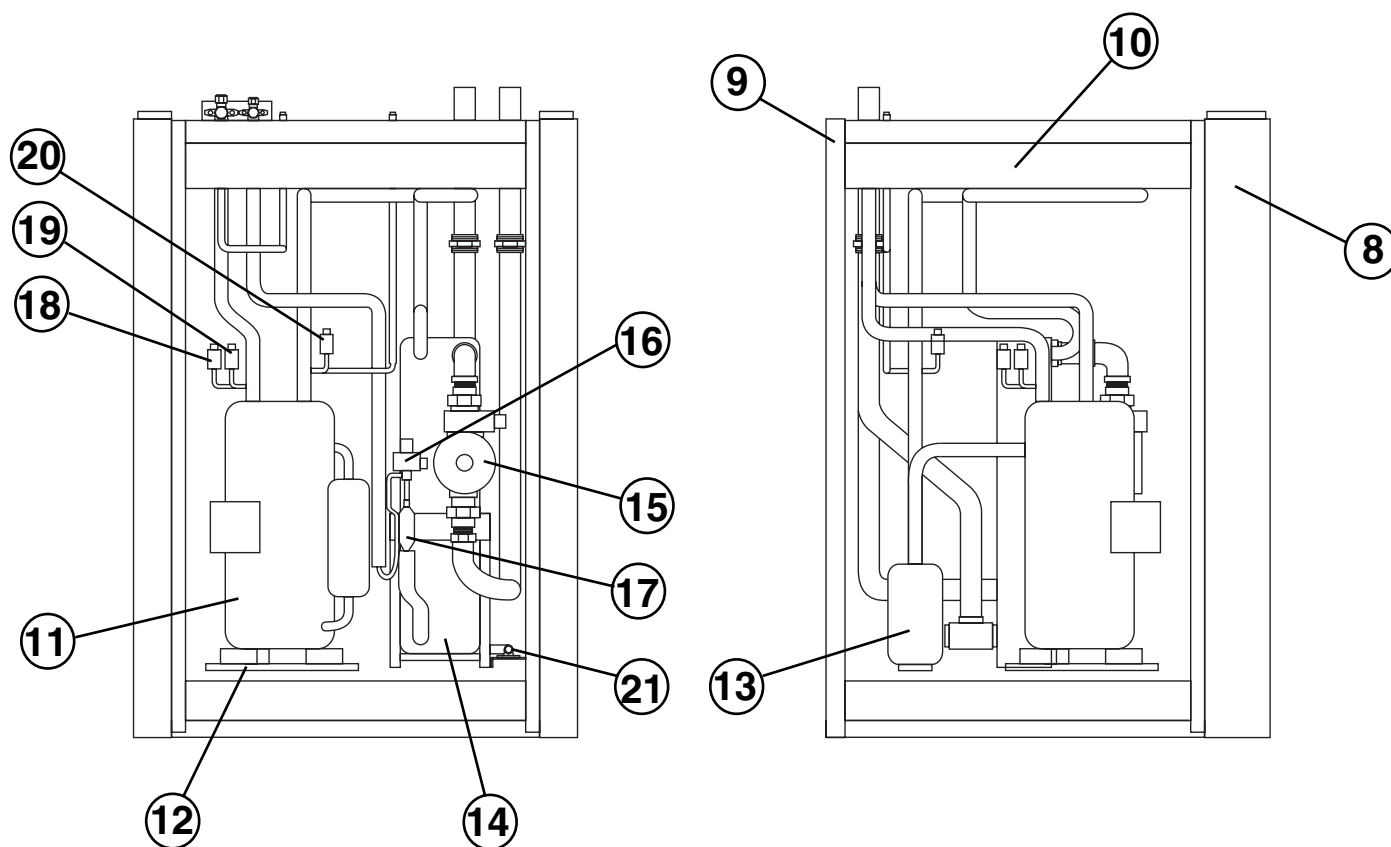
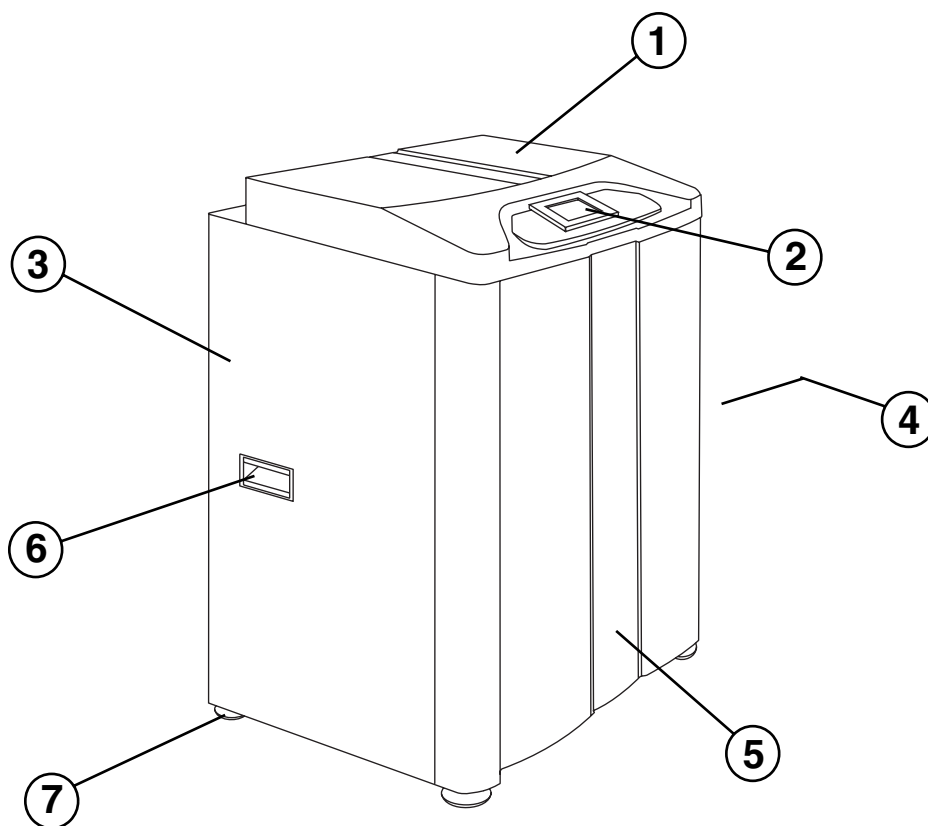
water sensor resistance

Unit: °C--KΩ (water/ambient/pipe sensor)											
T	R	AD	T	R	AD	T	R	AD	T	R	AD
-20	115.266	16	20	12.6431	99	60	2.35774	197	100	0.62973	236
-19	108.146	17	21	12.0561	102	61	2.27249	198	101	0.61148	237
-18	101.517	18	22	11.5	105	62	2.19073	200	102	0.59386	237
-17	96.3423	19	23	10.9731	107	63	2.11241	202	103	0.57683	237
-16	89.5865	21	24	10.4736	110	64	2.03732	203	104	0.56038	238
-15	84.219	22	25	10	113	65	1.96532	205	105	0.54448	238
-14	79.311	23	26	9.55074	116	66	1.89627	206	106	0.52912	239
-13	74.536	24	27	9.12445	119	67	1.83003	207	107	0.51426	239
-12	70.1698	26	28	8.71983	122	68	1.76647	209	108	0.49989	240
-11	66.0898	27	29	8.33566	125	69	1.70547	210	109	0.486	240
-10	62.2756	29	30	7.97078	128	70	1.64691	211	110	0.47256	240
-9	58.7079	30	31	7.62411	131	71	1.59068	212	111	0.45957	241
-8	56.3694	31	32	7.29464	133	72	1.53668	214	112	0.44699	241
-7	52.2438	34	33	6.98142	136	73	1.48481	215	113	0.43482	241
-6	49.3161	35	34	6.68355	139	74	1.43498	216	114	0.42304	242
-5	46.5725	37	35	6.40021	142	75	1.38703	217	115	0.41164	242
-4	44	39	36	6.13059	144	76	1.34105	218	116	0.4006	242
-3	41.5878	41	37	5.87359	147	77	1.29078	219	117	0.38991	243
-2	39.8239	42	38	5.62961	150	78	1.25423	220	118	0.37956	243
-1	37.1988	45	39	5.39689	152	79	1.2133	221	119	0.36954	243
0	35.2024	47	40	5.17519	155	80	1.17393	222	120	0.35982	244
1	33.3269	49	41	4.96392	157	81	1.13604	223	121	0.35042	244
2	31.5635	51	42	4.76253	160	82	1.09958	224	122	0.3413	244
3	29.9058	54	43	4.5705	162	83	1.06448	225	123	0.33246	244
4	28.3459	56	44	4.38736	165	84	1.03069	226	124	0.3239	245
5	26.8778	58	45	4.21263	167	85	0.99815	226	125	0.31559	245
6	25.4954	61	46	4.04589	169	86	0.96681	227	126	0.30754	245
7	24.1932	63	47	3.88673	172	87	0.93662	228	127	0.29974	245
8	22.5662	67	48	3.73476	174	88	0.90753	229	128	0.29216	246
9	21.8094	68	49	3.58962	176	89	0.8795	229	129	0.28482	246
10	20.7184	71	50	3.45097	178	90	0.85248	230	130	0.2777	246
11	19.6891	74	51	3.31847	180	91	0.82643	231	131	0.27078	246
12	18.7177	76	52	3.19183	182	92	0.80132	231	132	0.26408	246
13	17.8005	79	53	3.07075	184	93	0.77709	232	133	0.25757	247
14	16.9341	82	54	2.95896	186	94	0.75373	233	134	0.25125	247
15	16.1156	85	55	2.84421	188	95	0.73119	233	135	0.24512	247
16	15.3418	87	56	2.73823	190	96	0.70944	234	136	0.23916	247
17	14.6181	90	57	2.63682	192	97	0.68844	234	137	0.23338	247
18	13.918	93	58	2.53973	193	98	0.66818	235	138	0.22776	247
19	13.2631	96	59	2.44677	195	99	0.64862	236	139	0.22231	248

Component placement

Component Positions 1

Please Note : The picture for reference only !

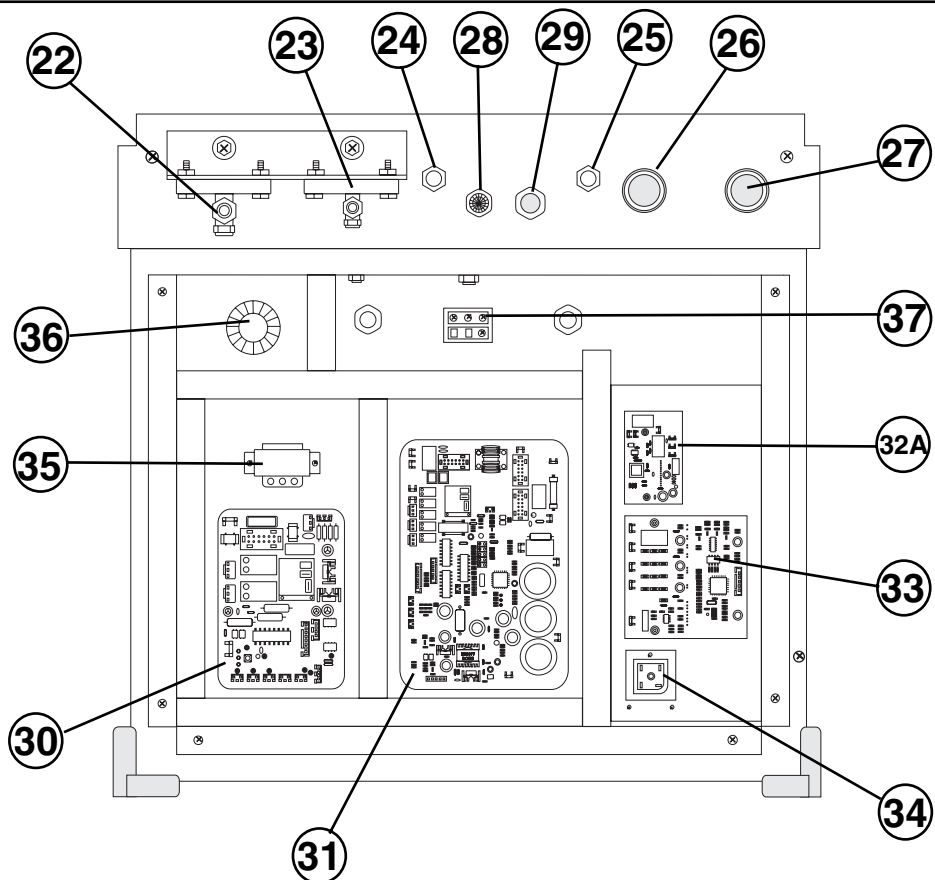


Component placement

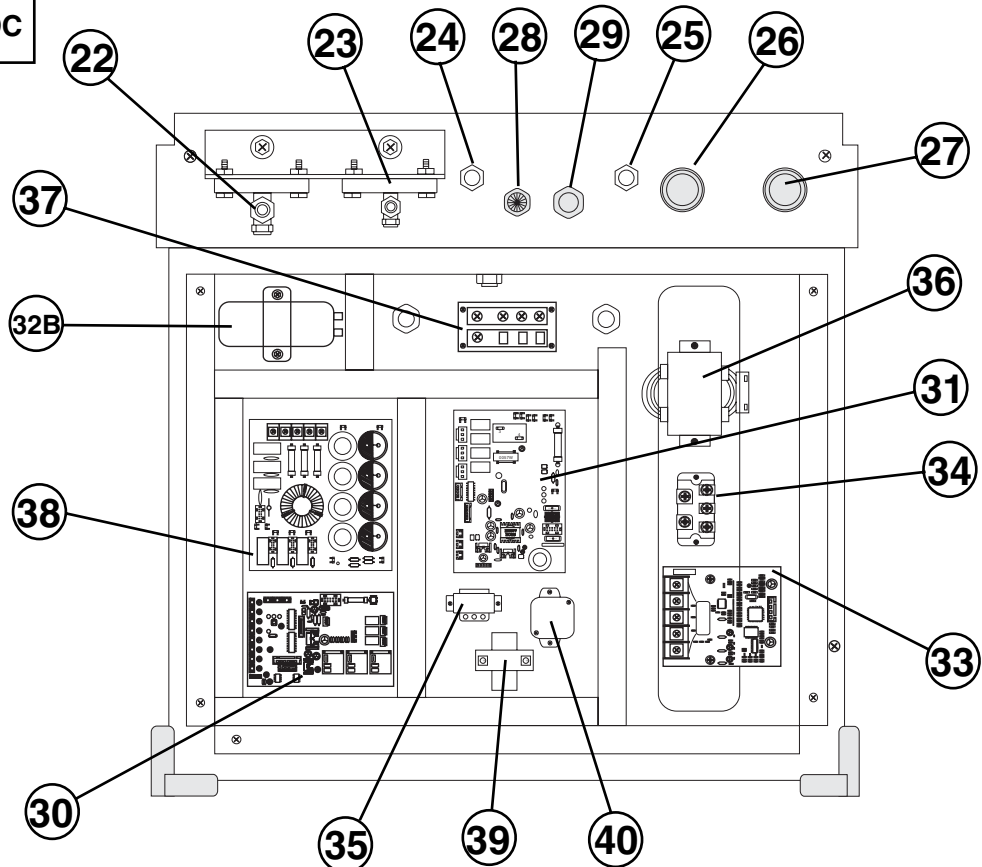
Component Positions 2

Please Note : The picture for reference only !

BWB-SS-7 / 9 DC

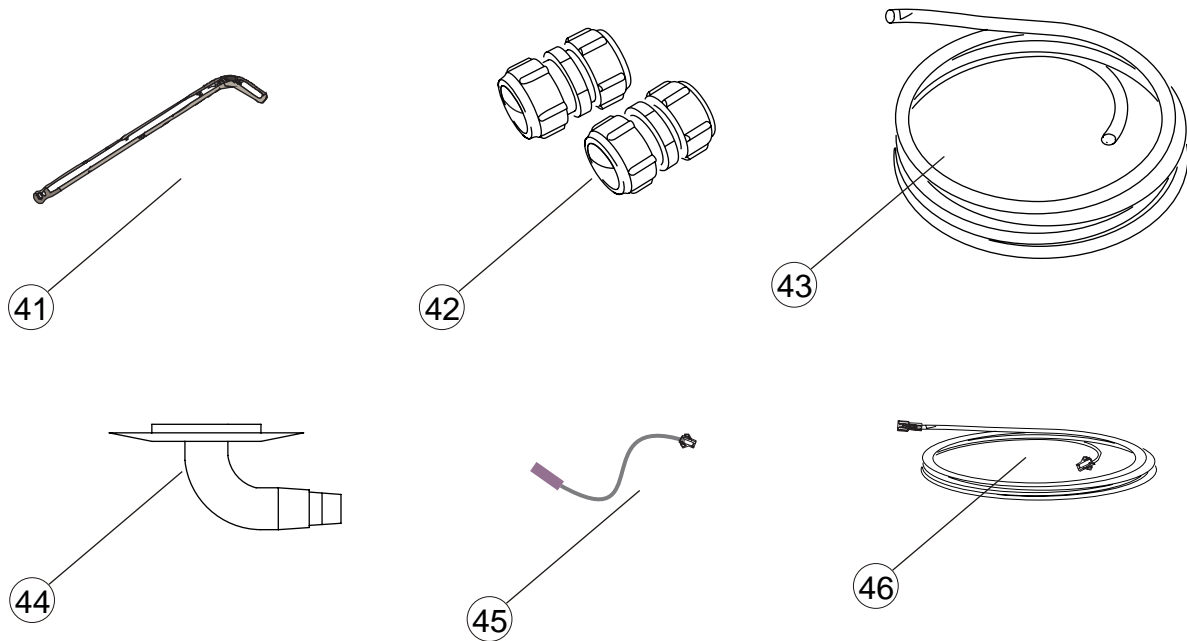


BWB-SS-12 / 15 DC



Accessories and List of components

Enclosed kit



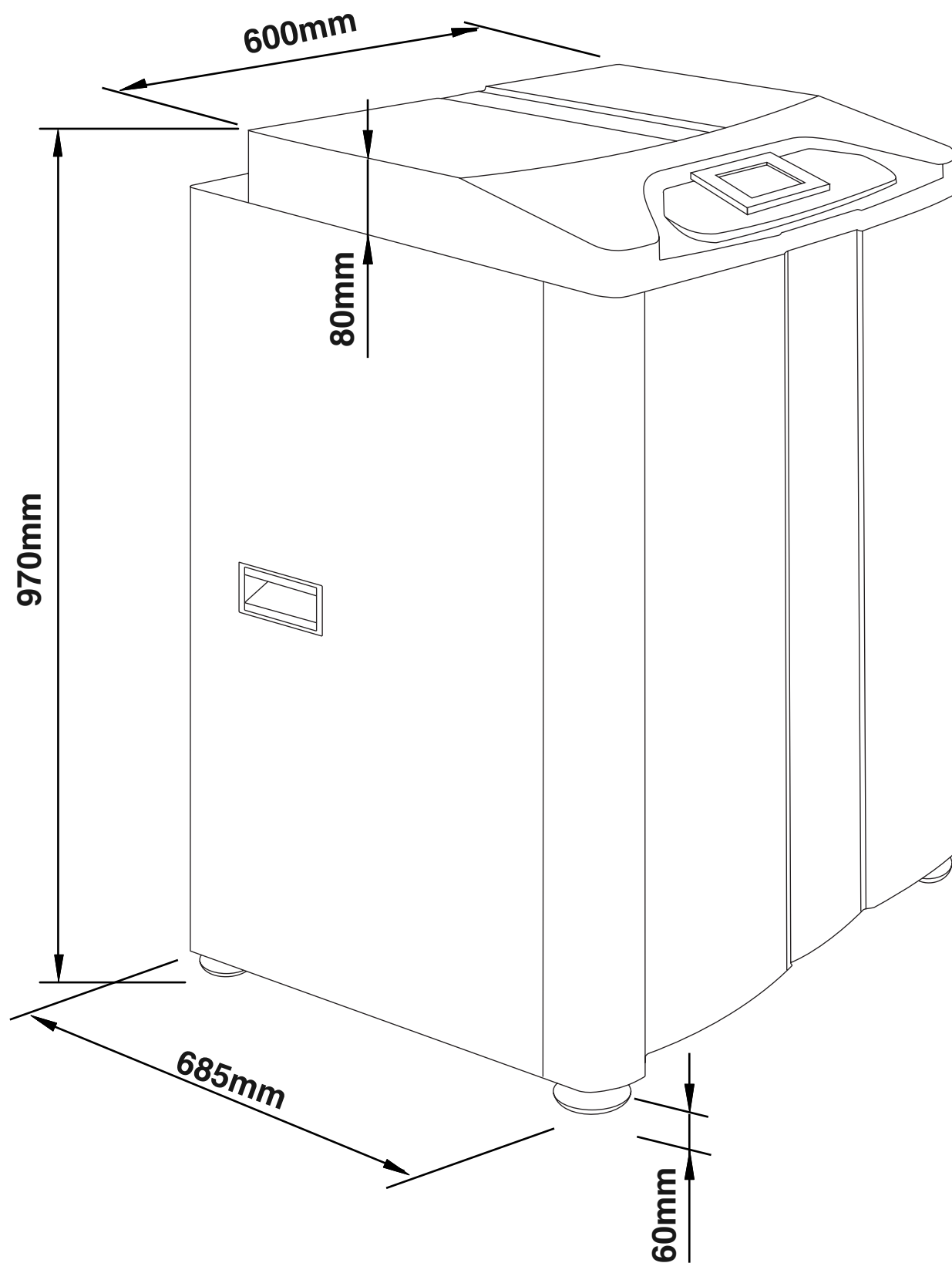
List of components

Please Note : The List for reference only !

1	Plastic top board	24	High pressure needle valve
2	Control panel	25	Low pressure needle valve
3	Left side board	26	Brine Out Pipe Connection Ø 28 mm
4	Right side board	27	Brine In Pipe Connection Ø 28 mm
5	Front board	28	Temperature sensor connection hole
6	Handles	29	Power cord connection hole
7	Stainless steel adjustable feet	30	Transition Circuit board
8	Pillars	31	Main circuit board
9	Structural framing	32A	PFC
10	Electrical Box	32B	Capacitor
11	Compressor	33	Module
12	Fixing Board For Compressor	34	Electrical Bridge
13	Oil tank	35	Transformer
14	Evaporator	36	Reactance
15	Water pump (Brine pump)	37	Terminal Connector
16	Expansion valve	38	Power Board
17	Drying filter	39	AC contactor
18	High pressure pressostat 1	40	PTC (Thermister)
19	High pressure pressostat 2	41	Allen key
20	Low pressure pressostat	42	Copper connectors
21	Draining connector	43	Drainpipe
22	High pressure valve	44	Draining connector
23	Low pressure valve	45	10K Copper Temperature Sensor (for Water Tank)
		46	Temperature Sensor Connections

Dimensions



Dimensions







Technical specifications



Technical specifications



CE IP 21 Refrigerant : R410A

Ground Source Heat Pump With DC inverter	
Model:	BWB-SS-7(DC)
Indoor unit	
Heating Capacity	7050W
Heating Power Input	1753W
Power Supply	220V/50Hz/1Ph
Rated Current	8.0A
Max.Input Power	2850W
Max.Discharge Pressure	4.0MPa
Max.SuctionPressure	0.95MPa
Refrigerant	R410A /1.6kg
Brine Pump Flux	1.8m³/h
Noise	<48dB(A)
Net Weight	80kg
CE   RoHS	

Ground Source Heat Pump With DC inverter	
Model:	BWB-SS-9(DC)
Indoor unit	
Heating Capacity	9080W
Heating Power Input	2253W
Power Supply	220V/50Hz/1Ph
Rated Current	10.3A
Max.Input Power	3050W
Max.Discharge Pressure	4.0MPa
Max.SuctionPressure	0.95MPa
Refrigerant	R410A /1.75kg
Brine Pump Flux	1.8m³/h
Noise	<49dB(A)
Net Weight	84kg
CE   RoHS	

Ground Source Heat Pump With DC inverter	
Model:	BWB-SS-12(DC)
Indoor unit	
Heating Capacity	11980W
Heating Power Input	2987W
Power Supply	220V/50Hz/3Ph
Rated Current	8.2A
Max.Input Power	5300W
Max.Discharge Pressure	4.0MPa
Max.SuctionPressure	0.95MPa
Refrigerant	R410A /2.5kg
Brine Pump Flux	2.05m³/h
Noise	<50dB(A)
Net Weight	105kg
CE   RoHS	

Ground Source Heat Pump With DC inverter	
Model:	BWB-SS-15(DC)
Indoor unit	
Heating Capacity	14800W
Heating Power Input	3718W
Power Supply	220V/50Hz/3Ph
Rated Current	9.7A
Max.Input Power	5450W
Max.Discharge Pressure	4.0MPa
Max.SuctionPressure	0.95MPa
Refrigerant	R410A /2.9kg
Brine Pump Flux	2.3m³/h
Noise	<51dB(A)
Net Weight	110kg
CE   RoHS	

Ground Source Heat Pump With DC inverter	
Model:	BWB-SS-15(DC)
Indoor unit	
Heating Capacity	14750W
Heating Power Input	3706W
Power Supply	380V/50Hz/3Ph
Rated Current	6.5A
Max.Input Power	5450W
Max.Discharge Pressure	4.0MPa
Max.SuctionPressure	0.95MPa
Refrigerant	R410A /2.75kg
Brine Pump Flux	2.3m³/h
Noise	<51dB(A)
Net Weight	110kg
CE   RoHS	

